CALFED Water Quality Program Development

Drinking Water Problems

Opportunities for Water Quality Improvement

Drinking Water: Source Water Quality Problems

- Source water + treatment = drinking water
- If source water too poor, treatment may be problematical
  - Treated water may be unsafe
  - Treated water may be unacceptable to consumers
  - Treated water may not meet standards
  - Operations may not be able to handle unusual water quality changes
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Drinking Water: Source Constituents of Concern

- Pathogens- direct public health problem
- Turbidity- direct compliance problem
- TOC, bromide- indirect problem (DBPs via treatment) for regulatory compliance, public health
- Nutrients/ algae- indirect problem (T&O via treatment) for consumer acceptability
- Total dissolved solids (TDS)/ salinity- direct problem for consumer acceptability

Drinking Water: Where are the Points of Concern?

- North Bay Aqueduct intake at Barker Slough
- Clifton Court Forebay, Bethany Reservoir and South Bay Aqueduct
- San Luis Reservoir
- Terminal branchs and storage reservoirs of CA Aqueduct
- Contra Costa WD intakes at Mallard Slough, Rock Slough and Old River
- Tracy intake on Delta Mendota Canal

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CALFED Core Water Quality Activities for Drinking Water

- Implementation activities
- Watershed management activities
- Research activities
- Monitoring activities

Watershed Management Programs

- Stakeholder-based development and implementation
- Local programs
  - North Bay Aqueduct at Barker Slough
  - South Bay Aqueduct
  - Old River near CCWD intake
  - Reservoirs
- Regional programs
  - Sacramento River Watershed Program
  - San Joaquin River Watershed Program

Proposed Bay-Delta Regional Core DW Activities

- Reduce TOC, salinity and nutrient loadings from Delta agriculture
- Minimize pathogens from recreational boaters
- Locate and manage restoration projects to minimize TOC at intakes
- Control wastewater and stormwater discharges of DW contaminants

Reduce Constituent Loadings from Delta Agriculture

- Reduce frequency of leaching
- Improve irrigation efficiency
- Manage discharge timing via storage
- Reroute agricultural drains
- Treat agricultural drainage
- Fallow or convert to low-input crops
- Convert to wetlands

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Concern for Adverse Impacts from Habitat Restoration

- Creation of wetlands or other habitat restoration may yield increases in adverse TOC loadings near intakes
- Some types of projects may be more problematical than others
- Magnitude of potential problem unknown
- Dedicated research is necessary

Control Wastewater and Stormwater Discharges

- Loadings of pathogens, nutrients, etc. from wastewater and stormwater discharges may be problematical
- CEQA and NPDES processes do not adequately address increased loadings over time or aggregate loadings over large areas
- Recommend discussions between SWRCB, DWR, DHS, drinking water and wastewater utilities

WQ Activities for North Bay Aqueduct Users

- Implement watershed management plan to control pathogens, TOC and turbidity loadings around Barker Slough intake
  - Recently funded at $580,000
- Conduct studies on other TOC sources in watershed
- Consider relocating intake away from Barker Slough

Water Quality Activities at Contra Costa WD Intakes

- Relocate Veale Tract agricultural drain impacting Rock Slough
- Relocate or mitigate Discovery Bay and other wastewater discharges into Old River near intake
- Identify and mitigate high-impact agricultural drains near Old River intake

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Water Quality Activities for South Bay Aqueduct Users

- Implement a watershed management program to control agricultural nutrient loadings, algae in aqueduct
  - Replace cattle bridges over aqueduct
- Implement a watershed management program at Lake Del Valle
  - May include swimming and boating
- Implement management program in Arroyo Valle watershed

Water Quality Activities for Tracy Intake and DMC

- Relocate or control Tracy wastewater discharges near intake to control pathogens and nutrients
- Mitigate high-impact agricultural drains to control TDS and TOC
- Improve control of marina and recreational boating discharges to reduce pathogen and MTBE loadings

WQ Activities for Southern Aqueducts and Reservoirs

- Reduce flood-related agricultural runoff into aqueducts to control pathogens, nutrients and TOC
- Eliminate whole body contact in reservoirs to control pathogens
- Implement watershed management to control pathogens and nutrients
- Control recreational boating to minimize MTBE contamination

Proposed WQ Research Activities

- Many unknowns exist
  - Basic understanding of contaminants
  - Characterization of sources
  - Utility of remediations
- Algal growth and mitigation
- Agricultural drainage
- Agricultural drainage controls
- Habitat restoration and TOC

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